UNITED STATES PATENT AND TRADEMARK OFFICE

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10/692,524	10/24/2003	Steve Johnson	MWS-039	9823

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 November 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30 and 37-39* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30 and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the amendment filed on 11/2/2007.

2.   As per applicant's request, claims 31-36 have been cancelled and claims 1, 2, 14-17, 20-

23, 37-39 have been amended. Claims 1-30 and 37-39 are pending in the application.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-11, 13, 16-26, 28, and 39 are rejected under 35 U.S.C. 102(b) as being

anticipated by Conway ("Parsing with C++ Deferred Expressions," ACM SIGPLAN Notices,

vol. 29, no. 9, pp. 9-16, ACM, 1994).

Per claim 1:

Conway discloses:

- providing via a programming language, a language processor with built-in support for a

parse tree data structure written in a base language (i.e. page 9, section 2 The deferred

expression idiom, second paragraph) said parse tree represented as a class, said class

being the basis for a plurality of parse tree objects, said parse tree objects including

methods able to retrieve values for base language objects (i.e. page 12, section 5

Embedding Deferred Assignments, third paragraph)

- defining an assignment function, said assignment function taking a plurality of parse

tree structures as arguments (i.e. see page 12, Fig. 4 presenting the deferred assignment

operator under section 5. Embedding deferred assignments)

- calling said assignment function to determine the value of at least one assignment

within at least one of said base language and a base language extension to said base

language (i.e. page 9, section 2 The deferred expression idiom, fourth paragraph).

Per claim 2:

Conway further discloses:

- defining said assignment function in more than one class, said assignment function

taking a plurality of parse tree objects as arguments; and overloading said assignment

function (i.e. page 12, section 5 Embedding Deferred Assignments, last paragraph).

Per claim 3:

Conway further discloses:

- wherein said assignment function overloads a mathematical operator (i.e. page 13,

section 6 Embedding other binary operations, first paragraph).

Per claim 4:

Conway further discloses:

- wherein the overloading of said assignment function is based on the context of the base

language objects (i.e. page 12, section 5 Embedding Deferred Assignments, second

paragraph; page 10, section 4. Embedding references to grammar components, second

paragraph).

Per claim 5:

Conway further discloses:

- evaluating said class at compile-time, and (i.e. page 9, section 2. Deferred Expression

   Idiom, third and fourth paragraphs)

- adjusting the resulting class definitions from said evaluation to increase the efficiency

   of run-time performance (i.e. page 10, lines 3-6).

Per claim 6:

Conway further discloses:

- overloading a mathematical operator with said assignment function to alter the sequence

of evaluation of operands usually followed in said programming language, said

overloading designating the order of operand evaluation (i.e. page 12, section 5

Embedding Deferred Assignments, last paragraph).

Per claim 7:

Conway further discloses:

- calling a method in said parse tree object to determine the type of operator at the root of

a tree (i.e. page 10, lines 3-6; page 11, second paragraph).

Per claim 8:

Conway further discloses:

- calling a method in said parse tree object to retrieve one of an associated left and right

tree (i.e. page 12, section 5 Embedding Deferred Assignments, third paragraph).

Per claim 9:

Conway further discloses:

- wherein the root of said parse tree data structure is one of a constant, variable, a

mathematical symbol and a mathematical expression (i.e. page 12, section 5 Embedding

Deferred Assignments, second paragraph).

Per claim 10:

Conway further discloses:

- wherein said assignment function is not explicitly defined (i.e. page 12, fig. 4).

Per claim 11:

Conway further discloses:

- wherein said assignment function is used to identify in-place operations (i.e. page 13,

fig. 6).

Per claim 13:

Conway further discloses:

- wherein said base language is one of C++, Java, System-C, VHDL, Verilog, C#, IDL,

MATLAB and a language based on the .Net framework (i.e. page 9, abstract).

Per claims 16-26 and 28, they are another method versions of claims 1-11 and 13,

respectively, and are rejected for the same reasons set forth in connection with the rejection of

claims 1-11 and 13 above.

Per claim 39, it is another method version of claim 3, respectively, and is rejected for the

same reasons set forth in connection with the rejection of claim 3 above.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or

described as set forth in section 102 of this title, if the differences between the subject matter

sought to be patented and the prior art are such that the subject matter as a whole would have

been obvious at the time the invention was made to a person having ordinary skill in the art

to which said subject matter pertains. Patentability shall not be negatived by the manner in

which the invention was made.

10.   Claims 12, 14, 15, 27, 29, 30, and 37-38 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Conway ("Parsing with C++ Deferred Expressions," ACM SIGPLAN Notices,

vol. 29, no. 9, pp. 9-16, ACM, 1994).

Per claim 12:

Conway teaches the various assignment functions (unary, binary) (i.e. page 13, Fig. 6).

Conway does not explicitly teach that said assignment function is used to identify and perform

multiply and accumulate ("MAC") operations.   However, it would have been obvious for one

having ordinary skill in the art to modify Conway's disclosed system to include an assignment

function on MAC operations (A=B+C*D) besides the disclosed operations. The modification

would be obvious because one having ordinary skill in the art would be motivated to perform an

assignment operation having an MAC operation if present.

Per claims 29 and 30:

Conway teaches using the parse tree classes to generate code (i.e. page 10, section 3. The

ParserExpr Base Class, first paragraph). Conway does not explicitly teach the parse tree classes

are used for an embedded processor and processor emulation.   However, it would have been

obvious for one having ordinary skill in the art to modify Conway's disclosed system to use the

parse tree classes in various processor environments if desired. The modification would be

obvious because one having ordinary skill in the art would be motivated to apply the disclosed

parse tree structure for an embedded processor and processor emulation, if desired.

Per claim 14, it is another method version of claim 29, respectively, and is rejected for

the same reasons set forth in connection with the rejection of claim 29 above.

Per claim 15, it is another method version of claim 30, respectively, and is rejected for

the same reasons set forth in connection with the rejection of claim 30 above.

Per claim 27, it is another method version of claim 12, respectively, and is rejected for

the same reasons set forth in connection with the rejection of claim 12 above.

Per claims 37 and 38, they are the medium versions of claims 14 and 15, respectively,

and are rejected for the same reasons set forth in connection with the rejection of claims 14 and

15 above.

Response to Arguments

5.   Applicant's arguments filed on 11/2/2007 have been fully considered but they are not

persuasive.

The applicant states that: the built-in support into the programming language for the use

of the parse objects to overload operators differs dramatically from the system described in

Conway which requires the use of a separate parser library that must be specifically referenced in

order to be included in the written source code (remark, 12).

In response to the statement above, the parser class library defines a set of related classes

to build parsing grammars within a C++ program (page 9, first paragraph, lines 1-2) and the C++

parse expression objects for operator overloading are built from the library source code in C++

with a C++ language processor with built-in support for such a parse expression structure to be

generated (six paragraph lines 1-5).

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Insun Kang whose telephone number is 571-272-3724. The

examiner can normally be reached on M-F 8:30-5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, MENG AI AN can be reached on 571-272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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